

Patent claims

1. An apparatus for separation of a fluid flowing through a pipeline into a light fraction and a heavier fraction, in which the fluid flow is set into rotation so that it is separated into a central sone (6) essentially containing the light fraction, and an outer annular sone (7) essentially containing the heavier fraction, and from which the fluid in the central sone and the fluid in the outer sone are discharged via respective outlet means (12-14 resp. 4),

10 characterised in that it comprises

an essentially tubular casing (2) arranged to constitute a section of the pipeline proper, a spin element (5) for rotation of the fluid flow being located at the upstream end of the casing (2), and the outlet means for the central sone comprising a discharge element (12) arranged downstream of the spin element (5) and having entry openings (13) for discharge of the light fraction and possibly entrained heavier fraction from the central sone (6),

15 a control separator (25) connected to the discharge element (12) and arranged to separate entrained heavier fraction from the light fraction, the separator (25) being provided with an outlet (35) for separated heavier fraction, and an outlet (28) for the light fraction, and

20 a control system comprising a level transmitter (42) for indication of the level of separated heavier fraction in the separator (25), and a level control unit (43) connected to the level transmitter (42) and to a drain valve (40, 41) in the outlet (28) of the separator for the light fraction, and in cooperation with the valve seeing that the separated heavier fraction in the separator (25) being kept at a constant level (31) corresponding to the maximally allowed, entrained quantity of the heavier fraction in the light fraction.

2. An apparatus according to claim 1,

25 characterised in that, in the casing (2) upstream of the spin element (5), there is arranged a guide body (10) which is designed to guide the supplied fluid (F) in an annular axial flow towards the spin element (5), and that the outlet means (4) for the

heavier fraction is arranged to carry this fraction out of the casing (2) in the axial direction of the casing.

*Sub A1* 3. An apparatus according to claim 1 or 2,

characterised in that the discharge element comprises a pipe (12) running axially in the casing (2) and being provided with entry openings in the form of a plurality of slots (13) arranged in a region of the pipe (12) upstream of a reflector element (15) for the light fraction arranged in the casing (2).

4. An apparatus according to one of the claims 1-3,

characterised in that an anti-spin element (16) for the heavier fraction in the outer zone (7) is arranged upstream of the outlet means (4) for the heavier fraction.

5. An apparatus according to claim 3 and 4,

characterised in that the spin element (5) and the anti-spin element (16) comprise respective core bodies (8 resp. 17) for supporting the components in the casing (2), and that the discharge pipe (12) at its upstream end is connected to the core body (8) of the spin element (5) and at its downstream end extends through the core body (17) of the anti-spin element (16) and passes into an outlet member (14) carried laterally through the casing (2).

6. An apparatus according to one of the preceding claims, wherein the light fraction is gas/vapour and the heavier fraction is a liquid,

characterised in that in the control separator (25) comprises a vertically oriented container (26) which, at its lower end, is connected to the discharge element (12) arranged in the casing (2), and which has an outlet (28) for gas at its upper end, the discharge element (12) being connected to the lower end of an inlet pipe (29) leading to a coalescer and gas outlet means (30).

25 7. An apparatus according to claim 6,

characterised in that the liquid outlet (35) of the control separator (25) is connected through a drainage line (37) with the outlet means (4) of the casing (2) at the downstream side of a flow restriction (21) arranged in the casing (2).

8. An apparatus according to claim 7,

30 characterised in that the drainage line (37) is provided with a regulating valve (38) for adjustment of the drainage velocity.

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